

ABSTRACT

A method of reinforcing a polymeric material with nanosize materials is provided in which materials such as vapor grown carbon nanofibers, carbon nanotubes, layered silicates, nanosize spherized silica, or graphite nanoparticles are combined with a polymer and a solvent to form a substantially homogeneous mixture, followed by removal of the solvent by evaporation or coagulation. Depending on the nanosize materials used, the resulting polymeric nanocomposite material exhibits high electrical and thermal conductivity, enhanced mechanical strength, abrasion resistance, reduced gas permeation, and/or dimensional stability.